

# Nicklaus Choo

SENIOR · CARNEGIE MELLON UNIVERSITY

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## Education

### Carnegie Mellon University

Pittsburgh, PA, USA

B.S. IN COMPUTER SCIENCE, CONCENTRATION IN ALGORITHMS & COMPLEXITY

Aug 2018 - Expected May 2022

- Cumulative GPA **3.58**, School of Computer Science Dean's List, High Honors F19, F20.

- Selected courses:

**10-701** Machine Learning (PhD)

**15-210** Parallel Data Structures & Algos

**21-241** Matrices and Linear Transformations

**15-411** Compiler Design (C++)

**15-213** Introduction to Computer Systems

**21-259** Calculus in 3D

**15-440** Distributed Systems (Java)

**15-251** Great Ideas in Theoretical CS

**21-301** Combinatorics

**15-451** Algorithm Design & Analysis

**15-259** Probability and Computing

**21-373** Abstract Algebra (*Current*)

**15-459** Quantum Computation (*Current*)

**15-260** Statistics and Computing

**80-413** Category Theory (*Current*)

## Work Experience

### NetApp SOFTWARE ENGINEER INTERN *SunnyVale, CA, USA*

May 2021 - Aug 2021

- 3x speedup for OS compile-update-reboot time for ONTAP virtual machines
- Automated ONTAP cloud cluster setup configuration for dynamic load testing
- 1.5x speedup for WAFL scheduler client I/O operations latency and 3.5x speedup for WAFL scheduler replication operations latency
- Further optimized 4.9x speedup for client I/O operations latency with online random forest server load prediction, incurring minimal slowdown (0.8x) for replication operations latency

### ZODAJ FULL STACK SOFTWARE ENGINEER INTERN *Pittsburgh, PA, USA*

May 2020 - Aug 2020

- Devised SMS and Android COVID-19 contact tracing for Senegal in partnership with Senegalese health authorities
- Designed NoSQL, PostgreSQL databases along with AWS Lambda RESTful API for TCN protocol contact tracing
- Directed and implemented all permissions and roles within ZODAJ for Amazon AWS databases
- Created exposure overlap algorithm for  $n$  people in a store that runs in  $\max(O(k) \text{ or } O(n \log n))$ , where  $k$  is overlap count
- Wrote graph algorithms, discrete-time Markov chain SIR epidemic modeling for tracking infections

### BOSCH ASEAN LINUX SYSTEMS ENGINEER INTERN (DevOps) *Singapore*

May 2019 - Aug 2019

- Enabled Jenkins server to run 2 ISO builds in parallel (1 executor, 2 slaves) for testing via dynamic port allocation
- Identified bottleneck in diagnosing failed builds and wrote Bash scripts to mount QEMU disks on build servers for automatic log extraction, significantly reducing debugging time
- Modified Jenkins pipeline to reduce deployment testing from 20 mins to 1 min
- Began migration of current inventory servers to new OCS inventory servers via Ansible for seamless configuration
- Authored Linux Debian package for unit tests automation (security/functionality) on new OS installations

### Eyeota Pte Ltd DATA ANALYTICS INTERN *Singapore*

Dec 2017 - May 2018

- Programmed data cleaning and classification of advertiser and buyer data from programmatic buy-side platforms
- Extracted advertisers' target demographic trends via both web-scraping and buyers' purchasing data
- Streamlined updates of daily, weekly, and monthly audience data sales revenue via complete process automation

## Technical Proficiencies

### Tools & Frameworks

- C | C++ | Bash | Python | Java | Kotlin | SML | HTML | CSS | JavaScript
- Ansible** server configuration, OS startup configuration
- AWS** Lambda, EC2, S3, RDS, DynamoDB, IAM, Neptune
- Docker** containerized OS build testing, app testing
- Jenkins** continuous feature/pipeline testing and deployment

**Terraform** TCN protocol backend configuration/deployment

**Front-end** .ISO download UI, log reporting, Android

**Back-end** build pipeline optimization, DB integration

**Agile** tri-weekly Sprint, daily SCRUM

## Extracurriculars & Projects

### 15-251 Great Ideas in Theoretical CS Course Tutor

- Conducted one-on-one tutoring sessions for students in the class.

### Sheet Music Assistant

- Created Python application built in Tkinter utilizing optical and audio recognition to read sheet music PDFs, playback, display and automatically flip pages for musicians during live performance.